



Training Simulations Replacement the M&S Way Ahead

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PURPOSE



To present to the AMSEC members the Army training simulations replacement strategy and justification.



BACKGROUND

- Trainers are not tied to the past. Simulations have changed rapidly and over time; the only loyalty is to 'what enables relevant training'
 - **CBS 1996: Cold War models/behaviors; ALSP; hex-based terrain/movement; keyboard inputs**
 - **CBS 2005: COE models/behaviors; C4I stim; 'Gunfighter'; 'FLUD'; federation (JCATS, TACSIM, LOGFED, others); polygonal terrain; 'mini-step' movement; graphical inputs**
 - **BBS 1996: Cold War models/behaviors; stand-alone**
 - **BBS 2005: COE models/behaviors; C4I stim; distributed gaming; federation (BICM, UAV)**
 - Janus - became UCCATS - became JCATS
 - Spectrum simulation is being 'reused'; Regional Analysis Model is core of current Proof of Principle effort to solidify concept and prototype for Joint



WARSIM

...does it all
1995

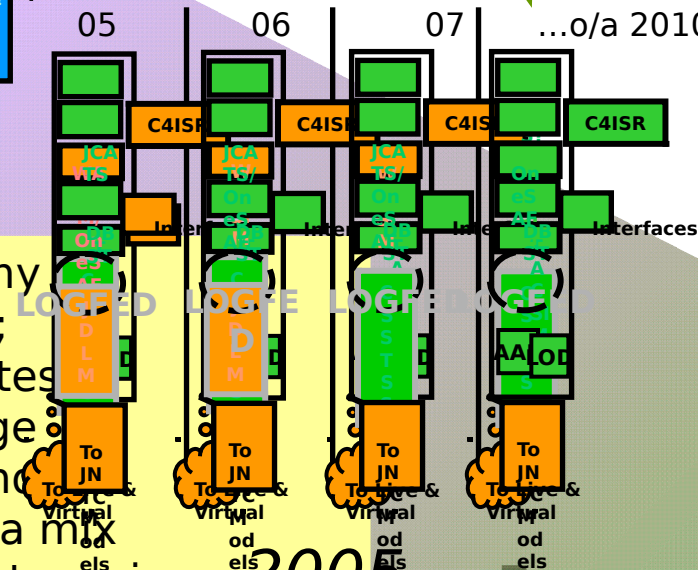
The diagram illustrates the JSIMS Core structure. At the center is a purple octagon labeled "JSIMS Core". This core is connected to several military branches and agencies, each represented by a colored box with an icon and a label:

- Top Left:** A blue box with an F-35 fighter jet icon, labeled "Air Force". Above it is a yellow box with "NASM" and "Air Force" text.
- Top Right:** A green box with an amphibious transport dock ship icon, labeled "Army". Above it is a yellow box with "WARSHIP" and "Army" text.
- Bottom Left:** An orange box with a globe icon, labeled "DIA". Above it is a yellow box with "Marines" and "DOMINANT" text.
- Bottom Center:** An orange box with a tank icon, labeled "NRO". Above it is a yellow box with "NRO" text.
- Bottom Right:** A blue box with an aircraft carrier icon, labeled "Navy". Above it is a yellow box with "Maritime" and "Navy" text.
- Top Center:** A yellow box with "Marines" and "Navy" text.
- Right Center:** A pink box with an F-35 fighter jet icon, labeled "NSA". Above it is a yellow box with "I-SIGINT" and "NSA" text.

Arrows indicate the flow of information from the central JSIMS Core to these various entities. The diagram is set against a background of green and yellow circles. At the bottom, the year "1997" is displayed in large, stylized text.

'Objective' System

US' demise caused Army to review sims' capability; conclusion was that smarter way ahead was to leverage improved current sims, and bring on new sims to use a mix of 'old' and 'new' that best services the COE and Modular Army training needs





SIMULATION REPLACEMENT STRATEGY



Decisions regarding when to replace current simulation Systems will be 'Event-Driven' decisions; the incoming simulation must demonstrate capabilities that:

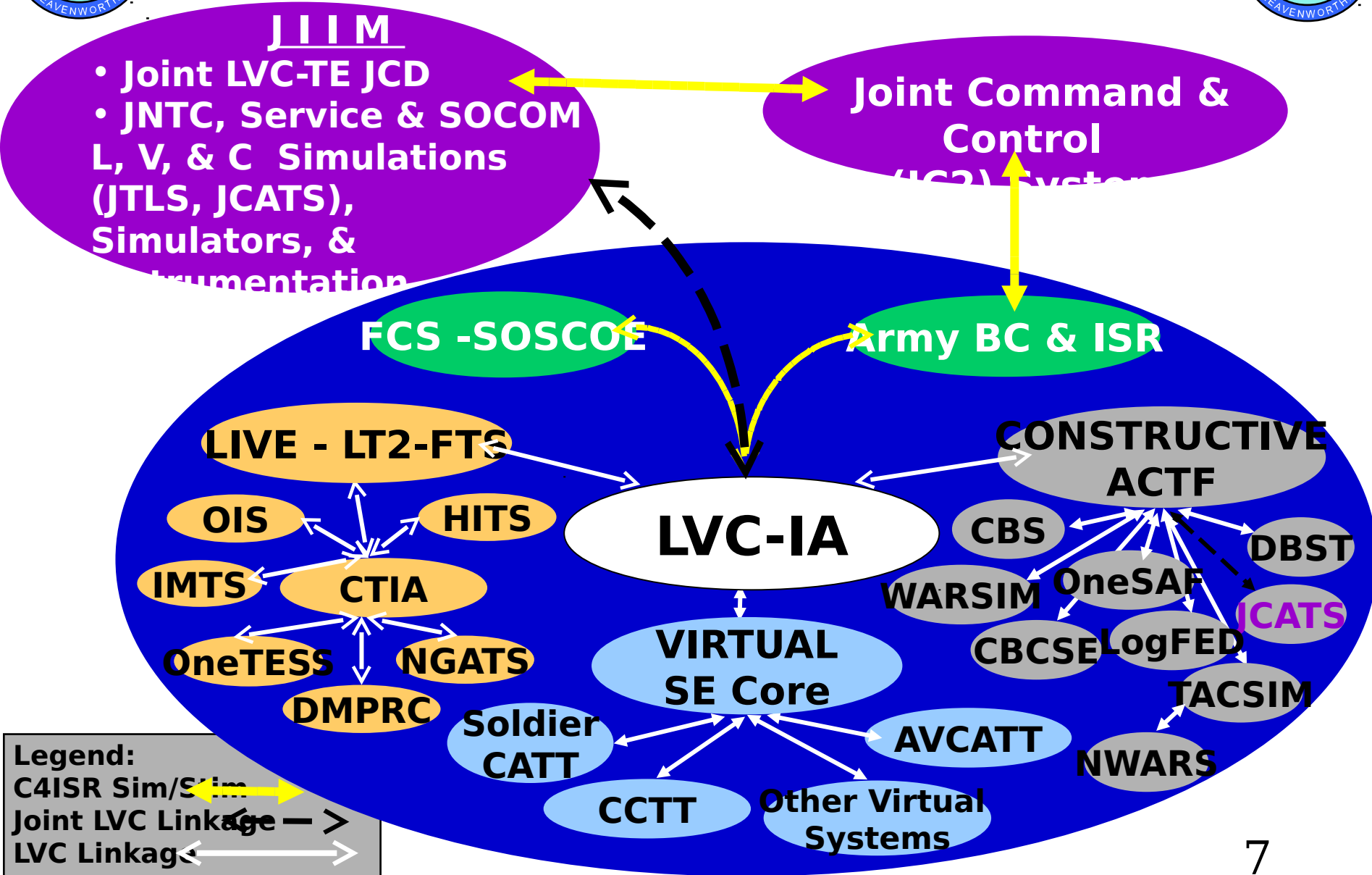
1) provide at least the same training capabilities as the simulation that it will replace, and

2) offer an improved training benefit that justifies the effort and resources to be expended to bring about the successful transition to a new simulation tool, and

3) are part of a logical 'toolkit' (LVC-IA/ACTF) that services the full breadth and depth of Army training needs.




LVC OPERATIONAL VIEW





LVC IA Required Capabilities

Integrating Architecture

-  **Backward Interoperable**
-  **Common and Reusable Software**
-  **Communications Standards and Protocols**
-  **Correlate/Dynamic Synthetic Natural Environment**
-  **Distributed Data Repositories**
-  **Open Systems**
-  **Standard Data Management**
-  **Security**

Operational System Stimulation

-  **Expanded Battlespace**
-  **Interact with Embedded Training Systems**
-  **Stimulate/Interact with BCS**

Plug and Train

-  **Performance Data Collection and AAR**
-  **Exercise Preparation and Control**
-  **Reach On Demand**
-  **Support a Collaborative Environment**
-  **Update Training Support System Produ**

Sustainment

-  **Fault Monitoring and Correction**
-  **Maintainability**
-  **Reliability**
-  **Supportability**

- **Joint links to Service & SOCOM systems are embedded in the requirements above**
- **LVC-IA provides enabling linkages and common interfaces**

ICD STATUS: AROC Approved 7 October 2004

Jt Tng FCB Approved 2 May 2005

JCB Approved 25 May 2005

JROC Approval - currently at final Paper JROC approval/ awaiting G-3 signature; estimate final approval and signature by end of June 2005.



USE CASE DEFINITION



Defined As: Description of a training event in terms of the training audience, training objectives, training support requirements (Example: response cells) and Live-Virtual-Constructive components.



CURRENT USE CASES- CURRENT, MID TERM, AND ANTICIPATED MODELS

| USE CASE | CURRENT MODELS | MID TERM MODELS | ANTICIPATED MODELS |
|---|---|--|---|
| Multi Level Contingency Exercise | ACTFV2.0 MRF (CBS, JCATS entities 5,100) | ACTFV3.0 MRF (CBS, JCATS entities 5,100) | ACTF V4.0 MRF (CBS, WARSIM, JCATS, OneSAF) |
| Theatre Level Strategic Deployment Ex | ACTF V2.0 MRF (CBS w/ 15,000 icons) | ACTF V3.0 MRF (CBS w/ 15,000 icons) | ACTF V4.0 MRF (CBS, WARSIM) |
| Joint Interoperability Exercise | ACTF V2.0 MRF(JCATS, AWSIM, ADSI, CBS) | ACTF V3.0 MRF(JCATS, AWSIM, ADSI, CBS) | ACTF V4.0 MRF (JCATS, OneSAF, AWSIM, ADSI, CBS, WARSIM) |
| Multi Level JIMM CPX | ACTF V2.0 MRF(JCATS, AWSIM, ADSI, CBS) | ACTF V3.0 MRF(JCATS, AWSIM, ADSI, CBS) | ACTF V4.0 MRF(JCATS, OneSAF, AWSIM, ADSI, CBS, WARSIM) |
| Corps MRX | ACTF V2.0 MRF (CBS, CSSTSS, TACSIM) | ACTF V3.0 MRF (CBS, LogFED, TACSIM, WARSIM (Intel)) | ACTF V4.0 MRF (CBS, WARSIM, LogFED) |
| Corps Embedded WFX with a HIUC spike | ACTF V2.0 MRF (CBS, CSSTSS, TACSIM) | ACTF V3.0 MRF (CBS, LogFED, TACSIM, WARSIM (Intel)) | ACTF V4.0 MRF (CBS, WARSIM, LogFED) |
| Corps Emb WFX in asymmetric environment | ACTF V2.0 MRF (CBS, CSSTSS, TACSIM) | ACTF V3.0 MRF (CBS, LogFED, JCATS, TACSIM, WARSIM (Intel)) | ACTF V4.0 MRF (CBS, WARSIM, LogFED, JCATS, OneSAF) |
| Division CPX | ACTF V2.0 MRF (CBS w/ 8,000 icons, TACSIM) | ACTF V3.0 (CBS w/ 8,000 icons, TACSIM, WARSIM (Intel)) | ACTF V4.0 (CBS, WARSIM) |
| Division WFX | ACTF V2.0 MRF (CBS w/ 8,000 icons, TACSIM) | ACTF V3.0 (CBS w/ 8,000 icons, TACSIM, WARSIM (Intel)) | ACTF V4.0 (CBS, WARSIM) |
| Battalion CPX | ACTF V2.0 ERF (JCATS), BBS | ACTF V3.0 ERF (BBS, JCATS) | ACTF V4.0 ERF (BBS, JCATS) |
| Heavy Brigade CTC Rotation | ACTF V2.0 ERF (JCATS), NTC Inst, , BBS, JANUS | ACTF V3.0 ERF (JCATS), NTC Inst, , BBS | ACTF V4.0 ERF, (JCATS, OneSAF), NTC Inst, BBS, OneSAF |
| BCT MRX (BCBST) | ACTF V2.0 ERF (JCATS) , BBS, JANUS | ACTF V3.0 ERF (JCATS) , BBS | ACTF V4.0 ERF (JCATS, OneSAF), BBS, OneSAF |
| BCT (Light, Heavy, Stryker) | ACTF V2.0 ERF (JCATS) , BBS, JANUS | ACTF V3.0 ERF (JCATS) , BBS | ACTF V4.0 ERF (JCATS, OneSAF), BBS, OneSAF |
| Bde WFX | ACTF V2.0 ERF (JCATS) , BBS, JANUS | ACTF V3.0 ERF (JCATS) , BBS | ACTF V4.0 ERF (JCATS, OneSAF), BBS, OneSAF |

V4.0 or beyond



CURRENT USE CASES- CURRENT, MID TERM, AND ANTICIPATED MODELS

| USE CASE | CURRENT MODELS | MID TERM MODELS | ANTICIPATED MODELS |
|--|---|---|--|
| INSTITUTIONS USE CASES | | | |
| CGSC Logistics Exercise | JDLM | JDLM, MiISIM | JDLM, MiISIM, WARSIM |
| CGSC Block 2 Digital Division Exercise | DBST and DA with JCOTS ISM | MiISIM, ISM | MiISIM, WARSIM, ISM |
| SCP Tactical Comds Dev Cse | JANUS | JCATS, MiISIM, ISM | JCATS, MiISIM, OneSAF, ISM |
| CGSC Block 3 Bde Ex | TACOPS/DBST/ISM | MiISIM, ISM | MiISIM, OneSAF, ISM |
| Fort Eustis Logistics Exercise | ACTF V2.0 MRF (JDLM, CBS w/ 3,000 icons). | ACTF V3.0 MRF (JDLM, LogFED, CBS w/ 3,000 icons). | ACTF V4.0 MRF (LogFED, CBS, WARSIM). |
| USASMA Battlestaff CPX | ACTF V2.0 ERF (JCATS), BBS, ISM | ACTF V3.0 ERF (JCATS), BBS, ISM | ACTF V4.0 ERF (JCATS, OneSAF), BBS, OneSAF, ISM |
| 7 th ATC BNOC Leader Development Course | ACTF V2.0 ERF (JCAT/SIMPLE) | ACTF V3.0 ERF (JCAT/SIMPLE), ISM | ACTF V4.0 ERF (JCAT/SIMPLE, OneSAF), ISM |
| Armor C3 - Gauntlet Exercise | ACTF V2.0 ERF (JCATS/SIMPLE. Icon 1200) | ACTF V3.0 ERF (JCATS/SIMPLE. Icon 1200), ISM | ACTF V4.0 ERF (JCATS/SIMPLE. Icon , OneSAF1200), ISM |
| MANSCEN Warfighter III | JANUS | JCATS, ISM | JCATS, OneSAF, ISM |

V4.0 or beyond



FUTURE USE CASES- CURRENT, MID TERM, AND ANTICIPATED MODELS

| USE CASE | CURRENT MODELS | MID TERM MODELS | ANTICIPATED MODELS |
|---------------------------------|---|--|---|
| UEy CPX | ACTF V2.0 MRF (CBS, JCATS, LOGFed, TACSIM) | ACTF V3.0 MRF (CBS, JCATS, LOGFed, TACSIM, WARSIM (Intel)) | ACTF V4.0 MRF (CBS, WARSIM, JCATS, OneSAF, LOGFed) |
| UEx WFX | | | |
| UEx CPX | | | |
| BCT CPX (Heavy, Light, Stryker) | ACTF V2.0 ERF (JCATS, TACSIM, BICM), BBS | ACTF V3.0 ERF (JCATS, TACSIM, BICM), BBS | ACTF V4.0 ERF (JCATS, OneSAF) |
| Maneuver Enhancement Bde CPX | ACTF V2.0 MRF (JCATS, CBS, TACSIM) | ACTF V3.0 MRF (JCATS, CBS, TACSIM, WARSIM (Intel)) | ACTF V4.0 MRF (JCATS, OneSAF, CBS, WARSIM) |
| Fires Bde CPX | ACTF V2.0 MRF (JCATS, CBS, TACSIM) | ACTF V3.0 MRF (JCATS, CBS, TACSIM, WARSIM (Intel), FireSIM) | ACTF V4.0 MRF (JCATS, OneSAF, CBS, WARSIM) |
| Aviation Bde CPX | ACTF V2.0 MRF (JCATS, CBS), AVCATT-A | ACTF V3.0 MRF (JCATS, CBS), AVCATT-A | ACTF V4.0 MRF (JCATS, OneSAF, CBS, WARSIM), AVCATT-A |
| Battlefield Surv Bde CPX | ACTF V2.0 MRF (JCATS, CBS, TACSIM) | ACTF V3.0 MRF (JCATS, CBS, TACSIM, WARSIM (Intel)) | ACTF V4.0 MRF (JCATS, OneSAF, CBS, WARSIM) |
| Sustainment Bde CPX | ACTF V2.0 MRF (CBS, JCATS, BICM, LogFED, TACSIM) | ACTF V3.0 MRF (CBS, JCATS, BICM, LogFED, TACSIM, WARSIM (Intel)) | ACTF V4.0 MRF (CBS, WARSIM, JCATS, OneSAF) |

V4.0 or beyond



MODULAR ARMY ANNUAL TRG REQUIREMENTS - FORSCOM DRAFT GUIDANCE



| UNIT TYPE | Bn CPX | CPX | BCTP WFX | BCTP MRX |
|----------------------------------|--------|-----------------------------|-------------|---|
| | | | | 2 ND /3 RD YR ONLY |
| UE _y /UE _x | NA | 1 (UE _x Only) | 1 | |
| HV BCT | 5 | 3 | TBD | 1 |
| LT BCT | 10 | 3 | TBD | 1 |
| S BCT | 6 | 3 | TBD* | 1 |
| FIRES BDE | 3 | 3 | 1 | 1 |
| BFSB | 1 | 3 | 1 | 1 |
| SUST BDE | 3 | 3 | 1 | 1 |
| AVN BDE | 8 | 4 | 1 | 1 |
| ME BDE | 4 | 3 | 1 | 1 |

* Currently there are two BCTP WFX planned in Sep and Dec 05 for the S BCT

Army training doctrine says that the Commander will determine the appropriate support tools for his training



WHERE WE ARE



- WARSIM and OneSAF are in development.
- Once operationally evaluated/validated as meeting the strategic guidelines for simulation replacement described earlier, Army will enthusiastically adopt them.
- Predict FY 2010 at earliest for full replacement of current simulation capabilities; will need to reevaluate prediction as capabilities mature.



WHERE WE ARE - OneSAF SPECIFICS

TEMO has completed a User Assessment of OneSAF, Block D, 'Build 24', 13 June - 08 July 2005.

- Functionality Assessed: Selected capabilities required to replace BBS, Janus, and JCATS MOUT
- Results:

| TOTAL THREADS | DEMONSTRATED | NOT DEMONSTRATED | TOTAL PTR'S |
|---------------|--------------|------------------|-------------|
| 167 | 19 (11%) | 148 (89%) | 507* |

PTR Priority Breakdown *

- **P1 - 08** (The problem crashes the system and must be fixed immediately.)
- **P2 - 314** (The problem causes a training task not to be trained or trained incorrectly.)
- **P3 - 96** (The problem causes a training task to be trained incorrectly but there is a work around.)

- **P4 - 89** (The problem is a nuisance but does not impact training.)

* **Does not include Deter, Duplicate, or Close-out PTRs (total 134)**

| | |
|-----------|--|
| Acronyms: | |
| BBS | - Brigade/Battalion Battle Simulation |
| JCATS | - Joint Conflict and Tactical Simulation |
| MOUT | - Military Operations on Urban Terrain |
| PTR | - Problem/Trouble Report |
| TEMO | - Training, Exercises, and Military Operations |